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New Taxa and New Combinations in Some Mexican and Central
American Melastomataceae

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ABSTRACT. Diagnoses, descriptions, and illustrations are presented for four new taxa of *Miconia* (*M. commutata* from Costa Rica and Panama, *M. danielii* and *M. tonduzii* var. *hirtella* from Costa Rica, and *M. dissita* from Panama). Three new combinations (*Miconia chinantlana* (Naudin) Almeda for *Staphidium chinantlanum* Naudin; *Miconia lundellii* (Wurdack) Almeda for *Clidemia lundellii* Wurdack; and *Tibouchina tortuosa* (Bonpland) Almeda for *Rhexia tortuosa* Bonpland) are proposed. *Miconia tonduzii* Cogniaux is neotypified and its infraspecific taxonomy is revised to include three varieties. *Miconia sparrei* Wurdack, which was described from Amazonian Ecuador and heretofore known only from the holotype, is redescribed, illustrated, and reported from the Caribbean lowlands of Costa Rica and from Peru. Citations of representative specimens, distributional and phenological notes, and comparisons with probable relatives are provided for each taxon.

Key words: Central America, Melastomataceae, Mexico, *Miconia*, Neotropics, *Tibouchina*.

This paper presents miscellaneous descriptions of new taxa, new combinations, a neotypification, and new distributional records for selected species in the genera *Miconia* Ruiz & Pavon and *Tibouchina* Aublet. It represents what I hope will be one of the last precursors to the accounts of the Melastomataceae for *Flora Mesoamericana* and the *Manual de Plantas de Costa Rica*. Work on a family like the Melastomataceae, which has radiated extensively in the wet tropics, is a challenging and unending synthesis. The floristic accounts men-

tioned above will be the first comprehensive accounts of the family for the region covered based on extensive fieldwork by a specialist and collaborators. I see these treatments as progress reports that will provide the crucial basis for identifying collections and as compendia that will stimulate additional exploration and research to deepen our understanding of one of the more commonly encountered families of vascular plants in the Neotropics.

Miconia chinantlana (Naudin) Almeda, comb. nov. Basionym: *Staphidium chinantlanum* Naudin, Ann. Sci. Nat. Bot. 3, 17: 318. 1851. *Clidemia chinantlana* (Naudin) Triana, Trans. Linn. Soc. London 28: 135. 1871. TYPE: Mexico. Oaxaca: Chinantla, Jocotepeque, 1000 m, 1840, *H. G. Galeotti 2945* (holotype, P; isotype, BR).

Miconia echinoidea Standley & Steyermark, Field Mus. Nat. Hist., Bot. Ser. 23: 180. 1944. Syn. nov. TYPE: Guatemala. Huehuetenango: vicinity of Maxbal, about 17 miles N of Barrillas, Sierra de los Cuchumatanes, *J. Steyermark 48831* (holotype, F).

Section *Octomeris*. Shrub 1.5–4 m tall, the uppermost terete cauline internodes, petioles, abaxial leaf surfaces, inflorescence rachis, hypanthia, calyx lobes, and exterior calyx teeth copiously covered with yellowish spreading stalked-stellate hairs. Leaves of a pair \pm equal to unequal in size; petioles 0.6–4.8 cm long; blades 9.7–20 \times 4–9.5 cm, ovate to lance-ovate, 5- to 7-plinerved with the innermost pair of primary veins diverging from the midvein in opposite or subalternate fashion 0.5–1.7

cm above the blade base, apex long acuminate, base obtuse to broadly rounded and commonly oblique, the margin inconspicuously ciliate-serrulate to nearly entire, the adaxial surface copiously covered with smooth spreading apically curved hairs 0.25–0.5 mm long. Inflorescence a terminal paniculiform dichasium 4–9 cm long with ultimate branchlets terminating in simple 3-flowered dichasia, flowers 5-merous, essentially sessile at anthesis with pedicels to 0.5–1 mm in fruit; bracts and bracteoles 1–2 × 0.25–0.4 mm, deciduous, subulate to elliptic, adaxial surface glabrous, abaxial surface beset with stalked-stellate hairs, the margin ciliate and terminating in a smooth hair. Hypanthial indument typically not concealing the actual surface at anthesis; calyx tube 0.25 mm long, the calyx lobes 2–3 mm long, and conspicuously exceeding the calyx lobes in length, ovate-rounded to ovate-oblong, the exterior calyx teeth stoutly subulate; petals 3–5 × 1.75–2 mm, glabrous, oblong-obovate and reflexed at anthesis; stamens 10, isomorphic; filaments 2–3.5 mm long, glabrous; anthers 3–3.5 mm long, yellow, linear-oblong with a ventrally inclined apical pore; connective thickened dorsally but neither prolonged nor appendaged; ovary 5-locular, $\frac{2}{3}$ inferior, apex of fruiting hypanthia truncate and glabrous around the styler scar but glandular-puberulent in a wide ring around the style; style 8 mm long, straight, sparsely beset with minute stellate and glandular hairs; stigma punctiform. Berry 6–7 × 6–7 mm when dry, purple-black when mature; seeds 0.75–1 mm long, ovoid, the testa vaguely rugulate.

Phenology. Flowering collections have been made from May through July; fruiting from August through November.

Distribution. Local and uncommon in rain forests and pine-oak-*Liquidambar* L. forests from southeastern Mexico (Chiapas and Oaxaca) to western Guatemala (Huehuetenango) at 1250–1900 m.

Miconia chinantlana is here assigned to section *Octomeris* Triana based on its elongate subulate anthers and regularly lobed calyx. Most recently collected material of this species has been identified as *Miconia echinoidea* Standley & Steyermark, the type of which is identical to the type of *Staphidium chinantlanum*, the oldest available specific epithet for this species. *Miconia chinantlana* is very close to and readily confused with *Miconia globulifera* Naudin, which also occurs in southeastern Mexico (Chiapas, Oaxaca, and Veracruz) and Guatemala. These two species are similar in habit, foliar shape, venation and indument, and in having 5-merous

flowers and a 5-locular ovary. *Miconia globulifera* differs in having the flowers aggregated in capitate clusters of more than three flowers at the ends of the inflorescence branchlets, the calyx teeth are 0.5–1 mm long and barely exceeding the calyx lobes in length, the hypanthia are beset with simple and apically bifid hairs 1–1.5 mm long that conceal the actual surface at anthesis, and the style is essentially glabrous.

Representative specimens examined. MEXICO. **Chiapas:** Mun. Cintalapa, SE of Cerro Baul on the border w/ Oaxaca, 16 km NW of Rizo de Oro along a logging road to Colonia Figaroa, *Breedlove* 27619 (DS); Mun. Jitotol, 5 km SE of Jitotol along road to Bochil, *Breedlove* 52655 (CAS); Mun. Yajalón, camino la punta del Cerro Ventana, *Méndez Ton* 6687 (CAS); Rancho Concepción (Adelante Caté Simojobel), *Miranda* 6694 (CAS). **Oaxaca:** Mun. Totontepec, Distr. Mixe, Rancho La Garrapata, 6 km al E de Totontepec, *Ramirez & Ramirez* 404 (CAS); Mun. Totontepec, Distr. Mixe, Totontepec, *Rivera* 1490 (CAS); Distr. of Choapam, Cerro Lalana, *Schultes & Reko* 856 (CAS, MEXU).

Miconia commutata Almeda, sp. nov. TYPE: Costa Rica. Heredia: Finca La Selva, OTS Field Station, Río Puerto Viejo, just E of jct. w/Río Sarapiquí, along Q. La Selva, 2800 m S × 700 m E, 22 Feb. 1982 (fl), *B. Hammel* 11237 (holotype, CAS; isotype, DUKE). Figure 1.

Section *Miconia*. Arbor 4–15 m; ramuli primum quadrangulati vel sulcato-quadrangulati demum teretes sicut petioli inflorescentia venae primariae subtus hypanthiaque indumento appresso amorpho-squamato induti. Lamina 15–31 × 6.3–12.8 cm oblongo-elliptica 3- ad 5-nervata, supra glabra. Panicula 10–28 cm multiflora; flores 5-meri, calycis tubus 0.5 mm altus, lobis interioribus 0.5 mm altis, dentibus exterioribus subobsoletis vel obscurissimis; fructum calyces decidui; stamina paullulo dimorphica glabra; antherarum thecae 2.5 mm anguste oblongae poro ventraliter inclinato, connectivo vix (0.5 mm) prolongato dorsaliter vel antherarum thecae 2.25 mm anguste oblongae poro truncato, connectivo vix (0.25 mm) prolongato dorsaliter ad basim bilobulato ornatis; ovarium 3-loculare et $\frac{2}{3}$ inferum apice glabro.

Tree 4–15 m tall, the quadrate to quadrisulcate uppermost cauline internodes, young petioles, inflorescence branches, pedicels, hypanthia, and calyx teeth moderately to densely covered with an appressed lepidote or bran-like indument. Leaves of a pair equal to subequal; petioles (2.5–)4–7.5 cm long, the blade 15–31 × 6.3–12.8 cm, 3- to 5-nerved with an additional inconspicuous intramarginal pair, oblong-elliptic, the apex caudate-acuminate, the base obtuse to rounded, the margin entire, the adaxial surface glabrous, the abaxial surface with a sparse deciduous lepidote or bran-like indument on the elevated primary veins but essentially glabrous on the actual surface. Inflores-

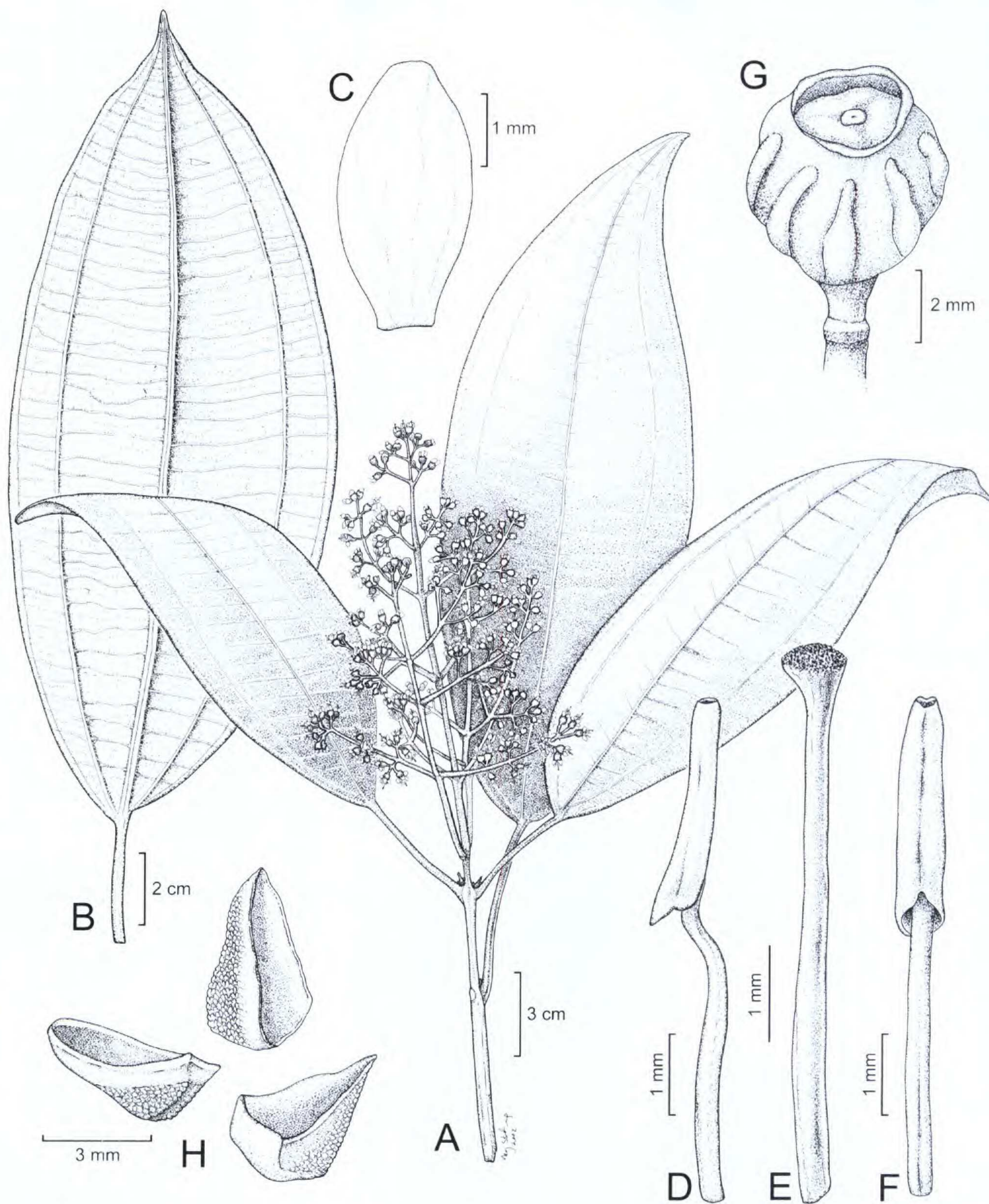


Figure 1. *Miconia commutata* Almeda. —A. Habit. —B. Representative leaf (abaxial surface). —C. Petal (adaxial surface). —D. Antepetalous stamen (profile view). —E. Style and stigma. —F. Antesepalous stamen (ventral view). —G. Mature berry. —H. Seeds. (A–F from the holotype Hammel 11237; G–H from Folsom 9855.)

cence a multiflowered panicle 10–28 cm long, the sessile flowers 5-merous, the bracteoles apparently very early deciduous and typically not seen. Hypanthium conspicuously 10-ribbed at maturity when dry; calyx tube 0.5 mm long, the calyx lobes 0.5×0.75 mm, broadly triangular, and ultimately deciduous on fruiting hypanthia to leave a truncate circumscissile scar, the exterior calyx teeth triangular, 0.1 mm long and not exceeding the calyx lobes but typically inconspicuous and appearing

obsolete; petals $2.5\text{--}3 \times 1.5\text{--}1.75$ mm, white but drying yellow, glabrous, oblong-obovate; anthers somewhat dimorphic, white, linear oblong, the thecae alternately 2.5 mm long with an emarginate ventrally inclined apical pore and the connective prolonged dorso-basally into a deflexed sheath-like collar 0.5 mm long or thecae 2.25 mm long with a \pm truncate pore and the connective prolonged dorso-basally into a blunt tooth-like spur 0.25 mm long and a bilobed ventro-basal appendage; style 5–7

mm long, glabrous; stigma clavate-truncate; ovary 3-locular, $\frac{2}{3}$ inferior, the apex glabrous and rounded. Berry 5–6 × 5–6 mm when dry, 10-ribbed, turning from green through yellow, red, and ultimately purple-black at maturity; seeds 1–1.5 mm long, \pm triangular in outline with a raphe that is expanded into a somewhat compressed elevated border, the glossy testa with minute but distinct verruculose angles on the convex face.

Phenology. Flowering collections have been made in February and March; fruiting specimens have been collected from February through May.

Distribution. Local and uncommon in lowland rain forest and swamp forest (0–120 m elevation) at the OTS Field Station along the Río Puerto Viejo on the Caribbean slope of Costa Rica and in the vicinity of Changuinola on the Caribbean versant in northwestern Panama.

Miconia commutata is assigned to section *Miconia* based on its slightly attenuate anthers and dorsally appendaged anther connective. It is characterized by its large entire leaf blades, long petioles, circumscissile calyx that falls away as a ring, anther connectives that are modified dorso-basally into a spur or sheath-like collar, 10-ribbed berries, and more or less triangular seeds with a raphe that forms a somewhat compressed elevated border. *Miconia commutata* is most similar to *M. smaragdina* Naudin in indument details and in the circumscissile nature of the calyx. The latter differs in having narrower leaf blades (2.7–8.5 cm) that are somewhat decurrent on the shorter (0.5–1.9 cm) petioles, petals that are minutely granulose-papillose (especially on the adaxial surface), anther connectives that are prolonged ventro-basally into a bilobed appendage with each lobe appressed to the base of each anther sac, and a capitate stigma. These two species also exhibit distinctive distributional and elevational differences. *Miconia commutata* appears to be restricted to low elevations (0–120 m) in Costa Rica and Panama, whereas *M. smaragdina* occurs at higher elevations (450)850–1500 m from southern Mexico disjunctly through Central America to Colombia, Venezuela, and Ecuador (Almeda, unpubl.).

Among South American species, *M. commutata* is superficially like *M. rivalis* Wurdack of Ecuador, which also has large leaf blades and a multiflowered inflorescence. The leaf blades of *M. rivalis*, however, are undulate-serrulate, the tardily deciduous indument on the inflorescence and hypanthia is appressed subamorphous-stellulate, the calyx lobes are persistent, and the anther pores are uniformly ventrally inclined.

The flowers of this species reportedly (fide *Hammel 11237*) have a very strong cinnamon-like or rose-cinnamon fragrance.

Etymology. The specific epithet is derived from the Latin word *commutata*, meaning changing or changed, in reference to the changing color of berries from green to yellow, then red, and ultimately purple-black at maturity.

Paratypes. COSTA RICA. **Heredia:** Finca La Selva, OTS Field Station on the Río Puerto Viejo just E of jct. w/Río Sarapiquí Central Trail, 2400 m line, *Folsom 9467* (CAS, DUKE), Southwest Trail, 1400–1600 m line, *Folsom 9697* (CAS, DUKE), El Swampo Trail, *Folsom 9767* (CAS, DUKE), Central Trail, 2600 m line/W Boundary, 3000 m line, *Folsom 9855* (CAS, DUKE); OTS Field Station, S Boundary, along Q. El Salto, *Hammel 7940* (CAS, DUKE); OTS Field Station, W Boundary 1800 m S, swampy area, *Hammel 12566* (CAS, DUKE). **Puntarenas:** Península de Osa, Bosque communal La Gloria, a orillas de Río Claro, *Cordero 277* (CR, INB, MO). PANAMA. **Bocas del Toro:** a orillas del Changuinola y bosque alrededor de la escuela de Corriente Grande, *Correa et al. 4014* (CAS, PMA).

Miconia danielii Almeda, sp. nov. TYPE: Costa Rica. Cartago: 4–6 km N of Trinidad on S-facing slopes of Volcán Turrialba, 4 July 1977, *F. Almeda, R. L. Wilbur & T. F. Daniel 2876* (holotype, CAS; isotype, CR). Figure 2.

Section *Cremanium*. Frutex 1.5–3.5 m; ramuli primum obtuse sulcato-quadrangulati demum teretes sicut petioli foliorum subtus venae primariae et secundariae hypanthiaque modice vel dense pilis dendriticis et lepidotis induti. Lamina 11.5–20 × 6–10.5 cm elliptico-ovata, 5-nerata, supra glabra. Panicula 8–15 cm multiflora, flores 5-meri, calycis tubus 0.25 mm altus, lobis interioribus 0.5–0.75 mm altis, dentibus exterioribus crassis appressis inframarginalibus. Stamina isomorphica glabra, antherarum thecae 1–1.5 mm oblongae latae 4-porosae, poro ventraliter inclinato; connectivum ad basim ventraliter paulo (0.1 mm) bilobulato-prolongatum dorsaliter dente 0.5 mm longo armatum. Ovarium 3-loculare et $\frac{1}{2}$ inferum apice glabro.

Shrub 1.5–3.5 m tall, the rounded-quadrate to quadrisulcate upper internodes, young petioles, primary and higher order veins on abaxial foliar surfaces, and inflorescence branches moderately to densely covered with lepidote and \pm flattened dendritic hairs. Leaves of a pair essentially equal in size; petioles 3.3–4.5 cm long, blades 11.5–20 × 6–10.5 cm, 5-nerved, elliptic-ovate, the apex acuminate to caudate-acuminate, the base obtuse to rounded, the margin conspicuously serrulate, the adaxial surface essentially glabrous at maturity. Inflorescence a multiflowered panicle 8–15 cm long, the 5-merous flowers on pedicels 1–1.5 mm long, the bracteoles 2.5–4.5 × 0.75–1 mm, oblong to elliptic-oblong, early-deciduous. Hypanthium spar-

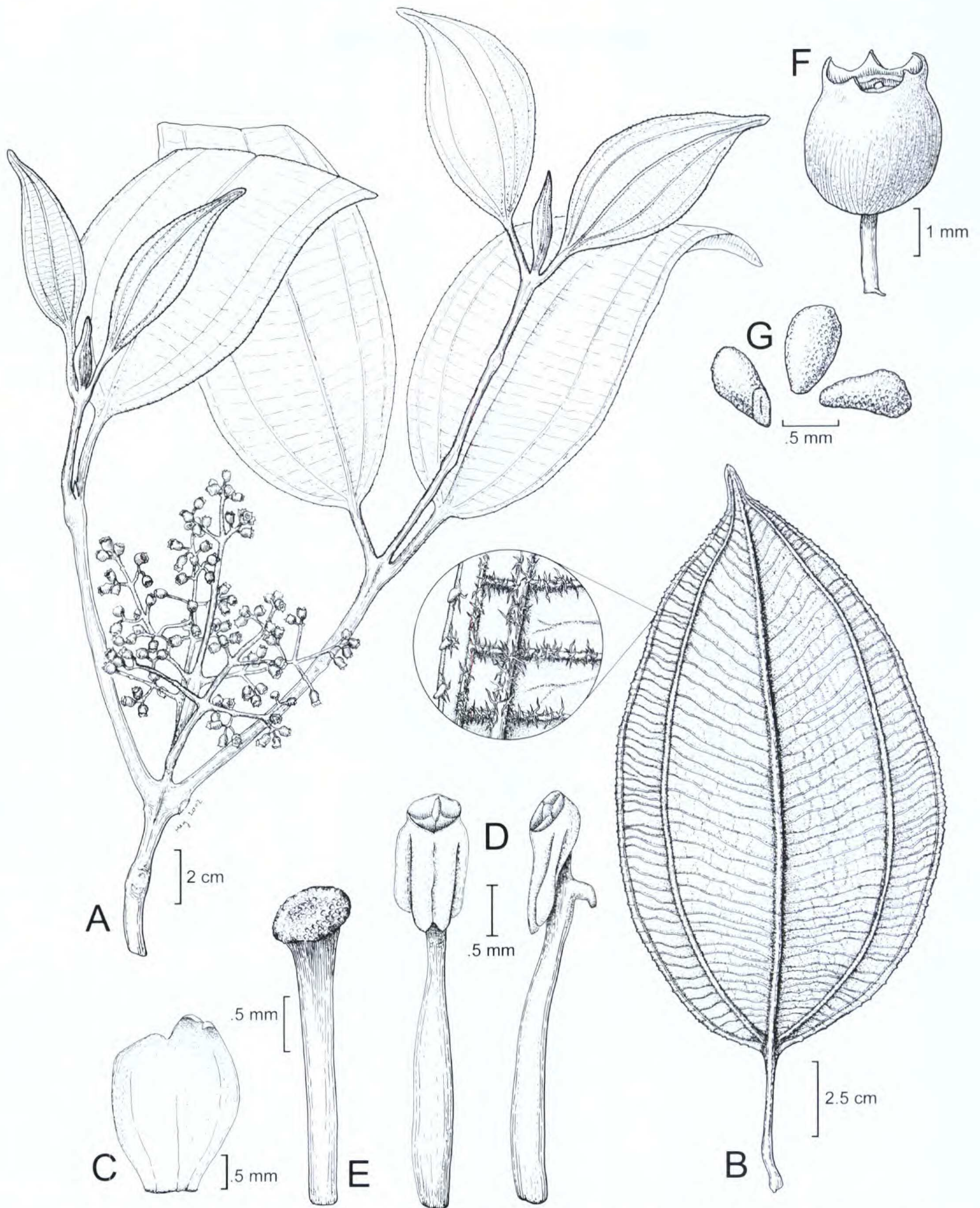


Figure 2. *Miconia danielii* Almeda. —A. Habit. —B. Representative leaf (abaxial surface). —C. Petal (adaxial surface). —D. Stamens, ventral view (left) and profile view (right). —E. Style and stigma. —F. Berry. —G. Seeds. (A, B, F from Almeda et al. 2883; C–E from Utley & Utley 2466; G from the holotype Almeda et al. 2876.)

ingly scurfy-puberulent at the base to essentially glabrous throughout; calyx tube 0.25 mm long, the calyx lobes $0.5\text{--}0.75 \times 1$ mm, broadly rounded; the exterior calyx teeth bluntly conic, 0.25 mm long, shorter than the calyx lobes; petals $1.5 \times 1.5\text{--}$

2 mm, white, glabrous, obovate to suborbicular; anthers isomorphic, 1–1.5 mm long, white, obovoid-oblong, 4-celled with 4 pores that are somewhat ventrally inclined; connective thickened dorsally and prolonged dorso-basally into a deflexed cau-

diform appendage 0.5 mm long and also prolonged ventro-basally at the base of each anther sac into a deflexed lobule 0.1 mm long; style 3–3.5 mm long, glabrous; stigma peltate; ovary 3-locular, $\frac{1}{2}$ inferior, the apex glabrous. Berry 3×4 –5 mm when dry; seeds 0.5 mm long, narrowly ovoid, the testa vaguely granulate.

Phenology. Collected in flower from March through May and July; in fruit in July and in December.

Distribution. Endemic to Costa Rica, where it is local and uncommon in cloud forests, forest margins, stream banks, and montane pastures on the Cordillera Central (Volcán Barva and Volcán Turrialba), Valle de Reventazón, and the Cordillera de Talamanca at 1300–2400 m.

Miconia danielii is here assigned to section *Cremanium* (D. Don) Naudin based on its obovoid anthers that are 4-celled and 4-pored. It is defined by a consistent combination of vegetative and floral features. It has an indument of bran-like and \pm flattened dendritic hairs on upper internodes, petioles, abaxial foliar veins, and inflorescence branches; 5-nerved, elliptic-ovate leaf blades with an acuminate to caudate-acuminate apex and conspicuously serrulate margins; white anther thecae that are 4-celled and 4-pored; an anther connective that is prolonged dorso-basally into a caudiform appendage and prolonged ventrally at the base of each anther sac into a deflexed lobule; a peltate stigma; and a vaguely granulate seed coat.

Among species of *Miconia* sect. *Cremanium* (D. Don) Naudin, *M. danielii* resembles *M. coriacea* (Swartz) DC. and *M. cremadena* Gleason in various details. The former differs from *M. danielii* in being dioecious and in having a deciduous-furfuraceous or matted furfuraceous indument, 2-celled and 2-pored anthers, a distally fistulose style and capitate stigma with a crateriform apex, and a smooth seed coat. *Miconia cremadena* differs most notably from *M. danielii* in its elliptic-oblong leaves with inconspicuously crenulate to subentire margins, and a glandular puberulence on the filaments and basally prolonged anther connective.

Etymology. This species is named for my colleague Thomas F. Daniel (b. 1954), co-collector of the type, student of Neotropical Acanthaceae, and field companion on several expeditions to Central America.

Paratypes. COSTA RICA. **Cartago:** 8 km N of Trinidad on S-facing slopes of Volcan Turrialba, *Almeda et al.* 2883 (CAS); Cantón de Paraiso, P. N. Tapantí, Valle de Reventazón, Río Grande de Orosí, sector la Represa, *Mora*

527 (CAS, CR, INB, MO); 1–2 km N of El Empalme, along trail N of old Pan-American Highway, *Utley & Utley* 2466 (CAS, CR). **Heredia:** headwaters of Río Santo Domingo, ca. 3 km NE of San Rafael de Varablanca, N slope of Volcán Barva, *Grayum* 7231 (CAS, CR, MO). **San José:** Las Nubes, *Standley* 38473 (US); near Finca La Cima, above Los Lotes, N of El Copey, *Standley* 42685 (US).

Miconia dissita Almeda, sp. nov. TYPE: Panama. Bocas del Toro: Edwin Fabrega Dam & Reserve in Fortuna, along Continental Divide trail bordering Chiriquí, 08°45'04"N, 82°15'04"W, 1200–1300 m, 16 Jan. 1989 (fl), *F. Almeda, G. de Nevers & G. McPherson* 6246 (holotype, CAS; isotypes, MO, PMA). Figure 3.

Section *Cremanium*. Frutex vel arbuscula 1.3–5 m; ramuli obtuse quadrangulati sicut inflorescentia hypanthiaque pilis asperis et pilis stellatis induti. Lamina 5.1–18 \times 2.4–9.8 cm elliptica vel elliptico-ovata 3- ad 5-nervata vel 3- ad 5-plinervata, supra et subtus glabra. Panicula 4–14 cm multiflora, flores 5-meri, calycis tubus 0.2–0.25 mm altus, lobis interioribus 0.5 \times 1 mm, dentibus exterioribus acutis 0.25 mm lobos interiores aequantibus vel paulo brevioribus; stamina isomorphica glabra, antherarum thecae 1.2 mm oblongae 2-porosae, poro ventraliter inclinato; connectivum nec prolongatum nec appendiculatum; ovarium 3-loculare et $\frac{1}{2}$ inferum apice glabro.

Shrub or small tree 1.3–5 m tall with somewhat swollen uppermost cauline nodes, the rounded-quadrate uppermost cauline internodes, inflorescence branches, and hypanthia moderately covered with scurfy asperous-headed and/or stellulate hairs. Leaves of a pair subequal to somewhat unequal in size; petioles 0.7–8 cm long, the blades 5.1–18 \times 2.4–9.8 cm, 3- to 5-nerved or if 3- to 5-plinerved then the innermost pair of primary veins diverging from the midvein 0.5–1.1 cm above the blade base, the blades elliptic to elliptic-ovate, the apex acuminate, the base acute to obtuse or rounded, the margin entire, glabrous on both surfaces. Inflorescence a multiflowered panicle 4–14 cm long with lateral branches diverging from the central axis at essentially right angles; flowers 5-merous, subsessile or on pedicels to 0.5 mm long; the bracteoles 0.2 \times 0.1 mm, triangular, inconspicuous and early-deciduous. Calyx tube 0.2–0.25 mm long, the calyx lobes 0.5 \times 1 mm, rounded-triangular, the exterior calyx teeth 0.25 mm long, triangular, \pm equaling the calyx lobes but barely or not protruding beyond the calyx lobes; petals 1–1.5 \times 1 mm, white, glabrous abaxially but often warty-papillate adaxially when dry, oblong-obovate to obovate; anthers 1.2 mm long, isomorphic, white, oblong, 4-celled with 2 ventrally inclined pores; connective thickened and \pm elevated dorso-basally but neither prolonged nor appendaged; style 4–6 mm long, glabrous; stigma capitate; ovary 3-locular, $\frac{1}{2}$ inferior, the apex

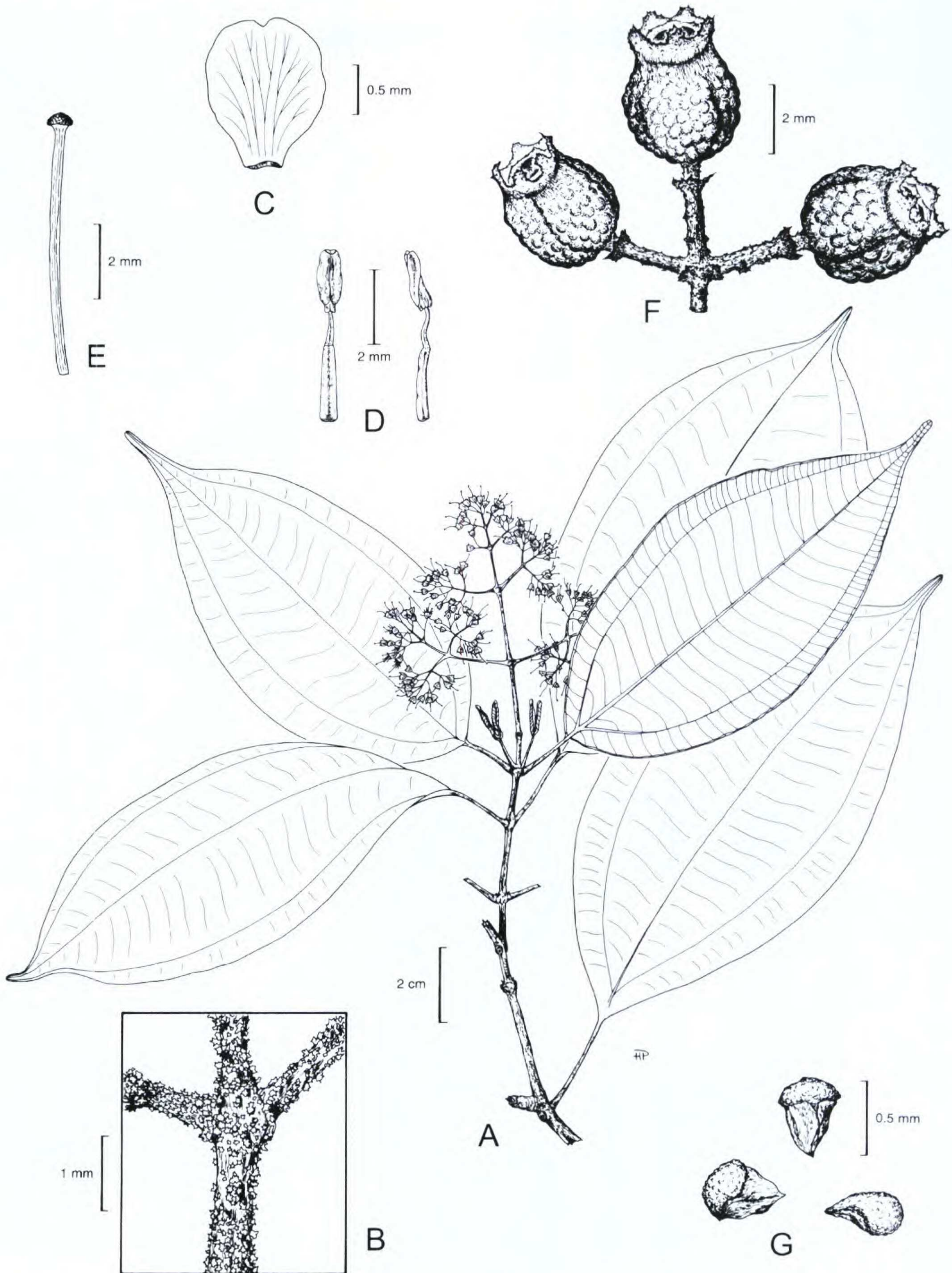


Figure 3. *Miconia dissita* Almeda. —A. Habit. —B. Enlargement of cauline indument. —C. Petal (adaxial surface). —D. Stamens, ventral view (left) and profile view (right). —E. Style and stigma. —F. Fruits. —G. Seeds. (A, B from McPherson 12013; C–E from Almeda et al. 6226; F from Antonio 4057; G from Croat 66632.)

glabrous. Berry 3.5–4 × 3.5–4 mm when dry, blue-green to blue-white at maturity; seeds 0.5 mm long, ± ovoid, the testa muricate.

Phenology. Flowering specimens have been collected from January through March; fruiting material has been collected from January through April, June, July, and September.

Distribution. Locally common to uncommon in cloud forest understory from Costa Rica's Cordillera Central (P. N. Braulio Carrillo) and Cordillera de Talamanca (vicinity of Cerro Duán) disjunctly west to Panama from the Edwin Fabrega Dam area in Fortuna to Cerro Colorado at 800–1500 m.

Miconia dissita is here placed in section *Cremanium* because of its 4-celled anthers with two apical pores. Its anther thecae are more elongate and less obovoid than many members of section *Cremanium*, but its affinities are clearly with members of this section. I initially identified many specimens of *M. dissita* as *M. tonduzii* Cogniaux var. *latifolia* Cogniaux (here reduced to the synonymy of *M. tonduzii* var. *tonduzii*) because of its comparatively wide leaf blades, 4-celled anthers, and capitate stigma. Closer inspection in the field and herbarium revealed a number of characters that cannot be accommodated in the range of variability here attributed to *M. tonduzii*. *Miconia dissita* can be recognized by its somewhat swollen distal nodes and lateral inflorescence branches that diverge from the main axis at angles of 90° or more. It also has a distinctive indument on upper internodes, inflorescence branches, and hypanthia that consists of scurfy asperous-headed and/or stellulate hairs and anther thecae that are widest at the middle with no evidence of a septum protruding beyond the apex of the anther thecae. The leaf blades of *M. dissita* are consistently entire, the adaxial petal surfaces frequently appear warty-papillate (in part) upon drying, and the seed coat is muricate.

Among species of section *Cremanium*, *Miconia dissita* appears to be most closely related to *M. tonduzii* var. *tonduzii*. In the latter, the distal nodes are not noticeably swollen, the lateral inflorescence branches diverge from the central axis at angles of about 45°, the indument is amorphous-furfuraceous puberulent or lacking, and the anther thecae are widest distally with an evident septum slightly protruding beyond the perimeter of the anther pore. Other differences that set *M. tonduzii* var. *tonduzii* apart from *M. dissita* are the remotely and obscurely denticulate to subentire leaf margins, completely smooth petal surfaces, and the obscurely granulate seed coat.

Etymology. The specific epithet is derived from the Latin word, *dissitus*, meaning lying apart, remote, or well-spaced, in reference to the spacing of lateral divergent branches on the inflorescence.

Paratypes. COSTA RICA. **San José:** Bajo Hondura, Parque Nacional Braulio Carrillo, *Davidse et al.* 23199 (CAS, CR, MO). **Cartago:** ca. 2 km E of Cachí along road paralleling Río Naranjo toward Cerro Duán, *Utley* 5887 (CAS, DUKE). PANAMA. **Bocas del Toro:** along road betw. Fortuna Dam & Chiriquí Grande along gravel road which departs main hwy. near Continental Divide (4.5 mi. N of bridge over Fortuna lake), *Croat* 66632 (CAS, MO); forest near headwaters of Río Culebra ca. 5 km ENE of Cerro Pate Macho, *Hammel* 6116 (CAS, MO, PMA); vic. of Cerro Colorado mine above San Felix, along trails N of road along Continental Divide, *McPherson* 12013 (CAS, MO). **Chiriquí:** Edwin Fabrega Dam & Reserve in Fortuna along trail to Río Hornito above Los Planes, *Almeda et al.* 6318 (CAS, MO, PMA); along road betw. Gualaca & Fortuna Dam site at 10.1 mi. NW of Los Planes de Hornito, *Antonio* 4057 (CAS, MO, PMA); Fortuna Dam area along Quebrada Bonito to E of road, *Churchill et al.* 4766 (CAS, MO).

Miconia lundellii (Wurdack) Almeda, comb. nov.

Basionym: *Clidemia lundellii* Wurdack, *Wrightia* 5: 227. 1976. TYPE: Guatemala. Baja Verapaz: Union Barrios, W of km 159, 13 Aug. 1975, *C. L. Lundell & E. Contreras* 19626 (holotype, US; isotypes, F, LL).

Section *Octomeris*. Shrub 1–2 m tall, the rounded-quadrate upper internodes, petioles, inflorescence axes, pedicels, hypanthia and calyx teeth densely covered with rusty-brown straight and/or curly tangled hairs 1–4 mm long underlain with a very sparse scattering of minute glands, the petiolar hairs often inconspicuously bifid apically. Leaves of a pair ± equal to somewhat unequal in size; petiole 1–4 cm long, blade 6–11.3 × 2.9–5.8 cm, elliptic-ovate, 5- to 7-plinerved with the innermost pair of primary veins diverging from the midvein 0.5–1.5 cm above the blade base, apex short-acuminate, base rounded to obtuse, the margin entire to obscurely crenulate, copiously ciliate, the adaxial surface moderately covered with somewhat spreading smooth hairs 1–2 mm long, the abaxial surface (including primary and higher order veins and actual surface) moderately covered with spreading rusty-brown smooth hairs ca. 1 mm long and sparsely underlain with ± sessile glands. Inflorescence a terminal paniculiform dichasium 2.5–5 cm long; flowers 5-merous on pedicels 2–5 mm long; the bracts and bracteoles 2–9 × 0.75–2 mm, narrowly oblong, tardily deciduous, ciliate, sparingly setose to glabrous on both surfaces. Hypanthium with an indument like the cauline internodes, but the hairs prevailingly straight and not curly; calyx

lobes 0.75×1 mm, broadly triangular, commonly concealed by the linear-oblong exterior teeth that are 1.5–2 mm long; petals $5-6 \times 3-3.5$ mm, glabrous, oblong-obovate; filaments 4–5 mm long, anthers 2.7–3.5 mm long, yellow, the apical pore ventrally inclined; connective thickened dorso-basally and prolonged below the thecae ca. 0.25 mm, otherwise exappendiculate; ovary 5-locular, $\frac{2}{3}$ -inferior, apex elevated into a depressed \pm crateriform dome that probably flattens out on maturing fruits. Mature berries and seeds are unknown.

Phenology. This species is known from only the type and one other collection; the August collection is in flower, the February collection is in young fruit.

Distribution. Apparently endemic to Guatemala (Baja Verapaz), where it occurs in montane evergreen forests. No elevational data are given on known collections, but judging from the collection localities this species appears to occur at elevations of about 2000–2100 m.

The elongate anthers and regularly lobed calyx of *Miconia lundellii* dictates placement in section *Octomeris* Triana. Wurdack describes the inflorescence of this species as seemingly terminal. Examination of the two known collections verifies his observation. There is no indication on either specimen that lateral shoots eventually overtop the inflorescence so that it becomes pseudolateral like a typical member of the genus *Clidemia*. In view of the apical dominance exhibited by the inflorescence of this species, I see no justification for maintaining it in *Clidemia* and here transfer it to *Miconia*. Fruiting material of this rare species is needed before its intrageneric affinities can be assessed with confidence. *Miconia lundellii* is readily recognized by its 5-merous flowers, 5-locular ovary, copious rusty brown indument of straight and/or curly tangled hairs, petiolar hairs that are often inconspicuously bifid apically, linear-oblong exterior calyx teeth that conceal the broadly triangular calyx lobes, and the unappendaged anther connectives.

Additional specimen examined. GUATEMALA. **Baja Verapaz:** Union Barrios on Salamá/Coban road, W, 3 km, on top of hill, *Lundell & Contreras 18958* (CAS, LL).

Miconia sparrei Wurdack, *Phytologia* 35: 245. 1977. TYPE: Ecuador. Morona-Santiago: Misión Salesiana, Gualaquiza, 700–800 m, 3 Oct. 1967, *B. Sparre 19290* (holotype, S; isotype, US). Figure 4.

Section *Tamonea*. Shrub or small tree 4–8 m tall, the rounded-quadrate uppermost cauline internodes (densely), petioles (moderately), and inflores-

cence branches (densely) setose with spreading \pm flattened barbellate trichomes 2–9 mm long. Leaves of a pair somewhat unequal in size; petioles 3–5.5 cm long; the blades oblong-elliptic to elliptic-obovate, $30-55.5 \times 13-28$ cm, 5-plinerved (often with an additional inframarginal pair of veins extending half to $\frac{2}{3}$ up the length of the blade), the innermost pair of primary veins diverging 1.5–3.3 cm above the blade base, the apex short-acuminate, the base obtuse, the margin denticulate, the abaxial blade surface essentially glabrous, the adaxial surface sparsely to moderately covered with spreading roughened or barbellate hairs on the primary and secondary veins but glabrous on the venules and actual surface. Inflorescence a multiflowered panicle 15–30 cm long with 5-merous sessile flowers borne in glomerules at the ends of the branchlets; the persistent narrowly triangular bracteoles $2-5 \times 0.75-2$ mm with stramineous crisped hairs at or near the base. Hypanthium sparsely stellulate-puberulent; calyx tube 0.5 mm long, the calyx lobes 0.25×1 mm, deltoid; the exterior calyx teeth small thickened callosities ca. 0.5 mm long that essentially obscure the calyx lobes; petals $2.5-4 \times 1-1.8$ mm, white, distinctly but minutely papillose abaxially and along the distal half adaxially; anthers somewhat dimorphic, linear-oblong; the thecae alternately 2 and 2.3–2.4 mm long with a ventrally inclined apical pore; the connective not prolonged abaxially but enlarged at the base of each anther sac and fringed with conspicuous glands; style 6 mm long, glabrous; stigma \pm truncate to barely expanded; ovary 3-locular, $\frac{1}{3}$ inferior, apex elevated into a low stellate-puberulent collar. Berry 4×5 mm when dry, reportedly yellow turning black at maturity; seeds 1.5 mm long, \pm triangular with an angulate convex face, the testa smooth and glossy.

Phenology. Flowering collections have been made in June and September; fruiting collections in February through June and in September.

Distribution. Rare and uncommon in primary rainforest at 30–800 m. It is presently known in a region extending from La Virgen to the OTS La Selva Biological Station in the Caribbean lowlands of Costa Rica, in Amazonian Ecuador, where it is known only from the type locality, and from Peru.

Based on its elongate subulate anthers and apically retuse petals, *Miconia sparrei* is assigned to section *Tamonea* Cogn. I here provide an expanded description and illustration (Fig. 4) for this species, which has heretofore been known only from lowland Amazonian Ecuador. Its discovery in the Caribbean lowlands of Costa Rica may seem surprising but it

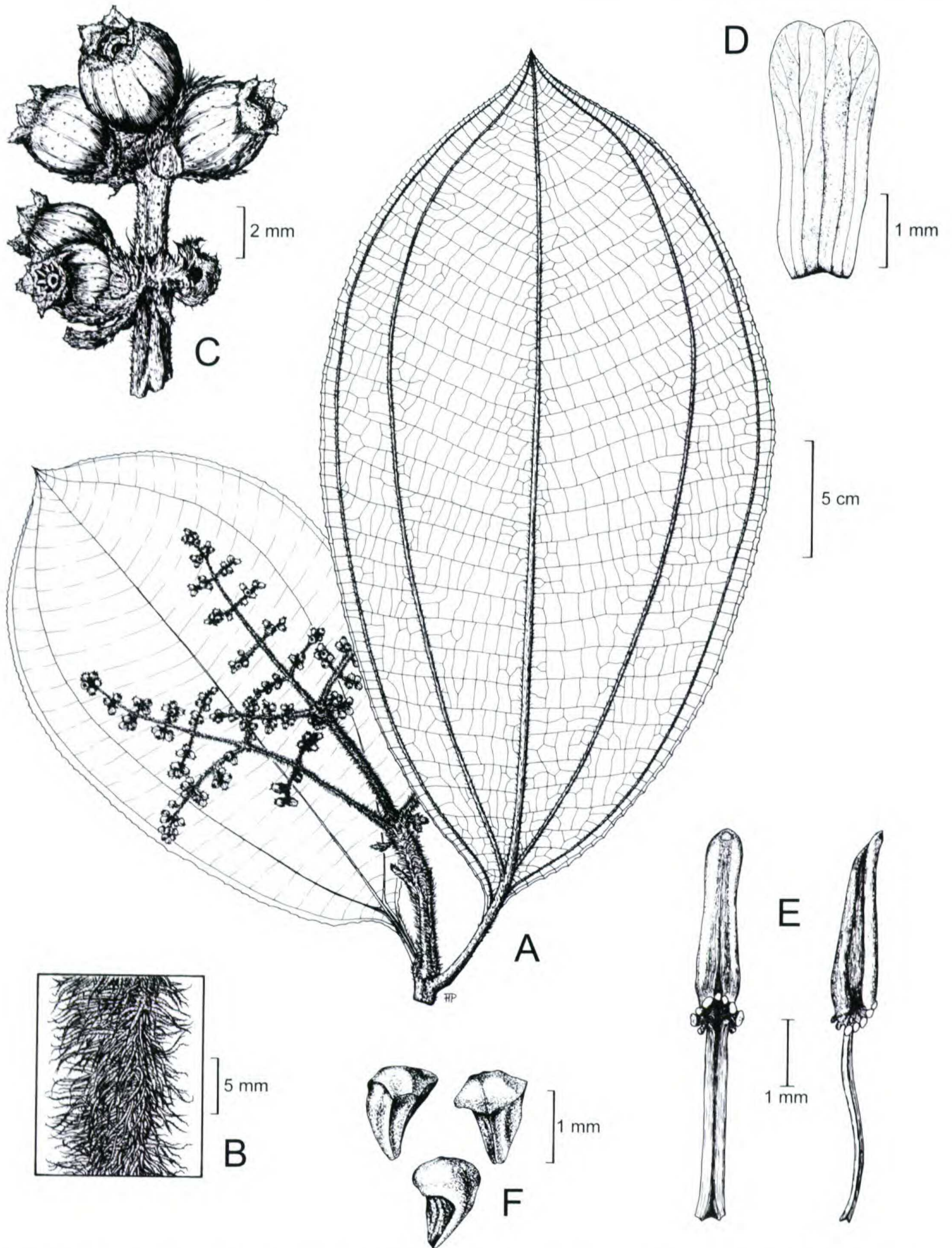


Figure 4. *Miconia sparrei* Wurdack. —A. Habit. —B. Enlargement of cauline indument. —C. Mature berries. —D. Petal (adaxial surface). —E. Stamens, ventral view (left) and profile view (right). —F. Seeds. (A–F from Zamora *et al.* 2451.)

is not unusual in view of distribution patterns seen elsewhere in the family. Wurdack (1980: 4) notes a recurrent distributional pattern among Ecuadorian Melastomataceae that includes Costa Rica–Panama, western Colombia, and the lower eastern slopes of the Andes.

Miconia sparrei is distinguished by its large leaf blades, upper cauline internodes that are densely covered with spreading, roughened or barbed \pm flattened trichomes, sessile flowers, anther connectives that are enlarged at the base and edged with several large glands, and \pm triangular seeds with a smooth glossy testa and an angulate convex face.

Representative specimens examined. COSTA RICA. **Heredia:** Finca La Selva, the OTS Field Station, Río Puerto Viejo at Pasos Perdidos entre los postes 3000 a 3200, *Chacón 618* (DUKE), in forest along S edge of Vargas property, *Hammel 11224* (CAS, DUKE), primary forest, SE section of new property, *Hammel 11659* (CAS, DUKE); Est. Biol. La Selva, Sendero Ribereño a Río Peje, *Hammel 17439* (CAS, DUKE); Cantón de Sarapiquí, Llanura de San Carlos, La Virgen, Finca La Tirimbina, *Zamora et al. 2451* (CAS, CR, F, INB, MO). PERU. **Huánuco:** *Morawetz & Wallnöfer 18–22888* (US). **San Martín:** *Schunke-Vigo 6949* (US).

Miconia tonduzii Cogniaux var. ***tonduzii*** Cogniaux, in A. DC. & C. DC., Monogr. Phan. 7: 1191. 1891. *Miconia tonduzii* var. *furfuracea* Cogniaux, in A. DC. & C. DC., Monogr. Phan. 7: 1191. 1891. Syn. nov. TYPE: Costa Rica. In sylvis ad Rancho Flores, alt. 2043 m, *A. Tonduz 2115* (neotype, here designated, BR; isotype, US).

Miconia tonduzii var. *cuneata* Cogniaux, in A. DC. & C. DC., Monogr. Phan. 7: 1191. 1891. Syn. nov. TYPE: Costa Rica. In sylvis ad Rancho Flores, alt. 2500–2700 m, *H. F. Pittier 1948* (holotype, BR; isotype, US).

Miconia tonduzii var. *latifolia* Cogniaux, in A. DC. & C. DC., Monogr. Phan. 7: 1191. 1891. Syn. nov. TYPE: Costa Rica. Ad Rancho Flores, mont. Barba, *A. Tonduz 2112* (holotype, BR; isotype, US).

Section *Cremanium*. Shrubs or small trees 2–6 m tall, the young branchlets, elevated primary leaf veins beneath, and inflorescences sparsely furfuraceous-puberulent to glabrate. Leaves of a pair equal to somewhat unequal in size; petioles 1–4.5 cm long. Leaf blades 7.5–16 \times 3–5 cm, 3- to 5-nerved, elliptic to elliptic-lanceolate, adaxially glabrous, abaxially sparingly furfuraceous-puberulent to glabrate, apex gradually acuminate, base acute to rounded, the margin remotely and obscurely denticulate to subentire. Panicle 5–8 cm long; flowers 5-merous on pedicels 1–2 mm long, the bracteoles 0.5–1.5 mm long, subulate and early-deciduous. Hypanthia obscurely and deciduously puncticulate-

lepidote, but often appearing glabrous; calyx tube 0.5 mm long, the oblong apically rounded lobes 0.5–0.7 mm long, the bluntly tuberculate teeth 0.5 mm long, appressed to but not exceeding the lobes; petals 2–2.5 \times 2–2.5 mm, obovate, glabrous; stamens isomorphic; anthers 1.5 mm long, cuneate, 4-celled, white or white flushed with pink, the pore widest distally, somewhat retuse and ventrally inclined with the septum slightly protruding beyond the perimeter of the anther; connective thickened dorso-basally into a bluntly lobulate spur and prolonged ventro-basally into a bilobulate appendage; style 4–5 mm long, glabrous; stigma capitate; ovary 3-locular, $\frac{2}{3}$ inferior, apex elevated into a lobulate glabrous collar. Berry 4–5 \times 4–5 mm, blue-green then turning purple at maturity; seeds 0.5 mm long, ovoid, obscurely granulate.

Phenology. Flowering specimens have been collected from January through May; fruiting collections have been made in January and from March through October.

Distribution. Locally common in cloud forests and elfin forests from Nicaragua (Cerro Pataste, east to the Cordillera Dariense and north to the Cordillera Isabella and Cerro Saslaya), south to Costa Rica, where it occurs from the Cordillera Central south to the Cordillera de Talamanca at 1300–3000 m.

Miconia tonduzii was assigned to section *Cremanium* by Cogniaux (1891) based on its cuneiform, 4-celled anthers. When he described *Miconia tonduzii* he neglected to cite any specimens under the nominate variety. Following the description of the species he provided diagnoses for six varieties and also listed a type specimen for each. I here recognize only two of the six varieties circumscribed by Cogniaux and describe a third one as new. Because Cogniaux did not specifically name a *M. tonduzii* var. *tonduzii*, I here neotypify the nominate variety. In doing so, I have selected the type of *M. tonduzii* var. *furfuracea* to become the type of the species. What has passed as *M. tonduzii* var. *furfuracea* is the most commonly encountered variety in this species complex. The nominate variety is characterized by its furfuraceous puberulence on upper cauline internodes, inflorescence branchlets, and primary veins on abaxial leaf surfaces.

Miconia tonduzii Cogniaux, a variable and puzzling species complex of southern Central America, is recognized by its 4-celled cuneate, broad-pored anthers with filaments that conspicuously exceed the petals in length and capitate stigmas. Cogniaux's six varieties were based largely on minor differences in the size and dentition of leaf blades

and details of the indument. All of his varieties, except *M. tonduzii* var. *oblongifolia* Cogniaux, which I am relegating to the synonymy of *Miconia carnea* Cogniaux, are readily accommodated in what I consider to be two infraspecific taxa worthy of recognition.

In addition to the three varieties treated here, another seemingly distinct population of *Miconia tonduzii* is known from Volcan Mombacho, Nicaragua (Neill 1396, CAS), and other mountaintops in Costa Rica and Panama. Plants from these populations are glabrous and the obscurely serrulate subentire leaf blades are somewhat shorter (4.5–8.3 cm) than typical for the species. Additional study is needed to properly evaluate the taxonomic status of these and other related populations and to determine whether *M. tonduzii* s.l. should be merged with the closely related *M. carnea*.

All populations of *M. tonduzii* s.l. that I have examined have hermaphroditic flowers, but one specimen (Almeda & Nakai 3829, CAS) has some stamens on some flowers that appear to be abortive and non-polleniferous.

Representative specimens examined. NICARAGUA. **Atlántico Norte:** near summit of Cerro Saslaya, Neill 3849 (CAS, MO). **Jinotega:** km 155 de la carr. entre Matagalpa y Jinotega, en las Pilas, Moreno 510 (CAS). **Madriz:** Cerro Pataste, ca 20 km SO de Ciudad Somoto, Grijalva 912 (CAS, MO). **Matagalpa:** Cerro El Picacho above Hotel Santa Maria de Ostuma, Nee 27634 (CAS, MO). COSTA RICA. **Alajuela:** ca. 15–20 km N of Sarchí on road to Bajos del Toro Amarillo, Almeda et al. 7366 (CAS, CR). Cartago: ca 14 km SE of El Empalme, Cordillera de Talamanca, Almeda et al. 3110 (CAS). **Heredia:** SW flanks of Volcán Barva above Sacramento, vic. of Laguna Barva, Almeda et al. 3275 (CAS, CR); road betw. San Rafael & Río Las Vueltas, N of Cerro Chompipe, Stevens 14037 (CAS, MO). **San José:** Cantón de Perez Zeledon, Cordillera de Talamanca, Camino a la Auxiliadora, 4 km E de Villa Mills, Gamboa & Picado 398 (CAS, INB).

Miconia tonduzii Cogniaux var. ***hirtella*** Almeda, var. nov. TYPE: Costa Rica. Cordillera de Talamanca, on right-hand turn onto a gravel road off the Interamerican Hwy. ca. 1 km beyond La Georgina en route to San Isidro de El General, 9700 ft. [2939 m], 9 Mar. 1981 (fl), *F. Almeda & K. Nakai* 4809 (holotype, CAS). Figure 5.

Section *Cremanium*. Frutex vel arbuscula 1–5 m; ramuli sulcato-quadrangulati sicut petioli foliorum subtus venae primariae et secundariae sparsiuscule setosis pilis plerumque 0.5–3 mm longis laevibus et lepidotis induti. Lamina 4.3–13 × 1.6–8 cm elliptica vel elliptico-ovata 5-plinervata, supra glabra vel sparse setulosa pilis laevibus ca. 0.5–1 mm longis. Panicula 8–15 cm multiflora, flores 5-meri; calycis tubus 0.25 mm altus, lobis interioribus 0.5 × 1 mm, dentibus exterioribus acutis 0.3 mm

lobos interiores brevioribus; stamina isomorphica glabra, antherarum thecae 1.5 mm oblongo-cuneatae 2-porosae, poro ventraliter inclinato; connectivum ad basim ventraliter paulo bilobulato-prolongatum; ovarium 3-loculare et ½ inferum apice glabro.

Shrub or small tree 1–5 m tall, the rounded-quadrate to quadrisulcate uppermost cauline internodes and petioles sparsely covered with smooth spreading hairs 0.5–3 mm long underlain with a sparse brown-lepidote indument. Leaves of a pair equal to subequal in size; petioles 1–3 cm long; blades 4.3–13 × 1.6–5(–8) cm, 5-plinerved, the innermost pair of primary veins diverging from the midvein 1.5–3(–9) mm above the blade base, the blade elliptic to elliptic-ovate rarely varying to almost obovate, the apex acuminate, the base obtuse to almost rounded, the margin ciliate-serrulate, the adaxial surface essentially glabrous or sometimes with a few scattered smooth spreading hairs 0.5–1 mm long, the abaxial surface sparsely covered with spreading smooth hairs 0.5–2 mm long on primary and higher order veins and sparsely brown lepidote on the actual surface. Inflorescence a multiflowered panicle 8–15 cm long, the main branches and pedicels sparsely brown-lepidote; flower 5-merous on pedicels 1–2.5 mm long, the early deciduous bracteoles 0.5–0.75 mm long, linear-subulate and filiform. Calyx tube 0.25 mm long, the calyx lobes 0.5 × 1 mm, rounded-triangular, calyx teeth 0.3 mm long, bluntly triangular, appressed to and shorter than the calyx lobes; petals 1.5–2.5 × 1.5–2 mm, white, glabrous, obovate; anthers 1.5 mm long, isomorphic, white, cuneate and widest apically, 4-celled with two ventrally inclined pores and a septum protruding somewhat beyond the perimeter of the pores; connective thickened and somewhat dilated dorso-basally and prolonged ventro-basally into a bilobulate appendage; style 4–5 mm long, glabrous; stigma capitate; ovary 3-locular, ½-inferior, the apex glabrous and ± rounded on mature fruits. Berry 3.5–4 × 3.5–4 mm when dry, pale blue-green at maturity; seeds 0.5 mm long, ovoid, the testa granulate.

Phenology. Flowering from January through May; fruiting from March through June.

Distribution. Endemic to Costa Rica where it is locally common in cloud forests and montane pastures on the Cordillera Central (Vol. Barva, Vol. Irazú, and Vol. Turrialba), Cerros de Escazú, and the Cordillera de Talamanca at 2300–3000 m.

This variety is readily distinguished from the other infraspecific taxa of *Miconia tonduzii* by the ciliate-serrulate leaf margins and the spreading blackish indument of smooth trichomes on upper

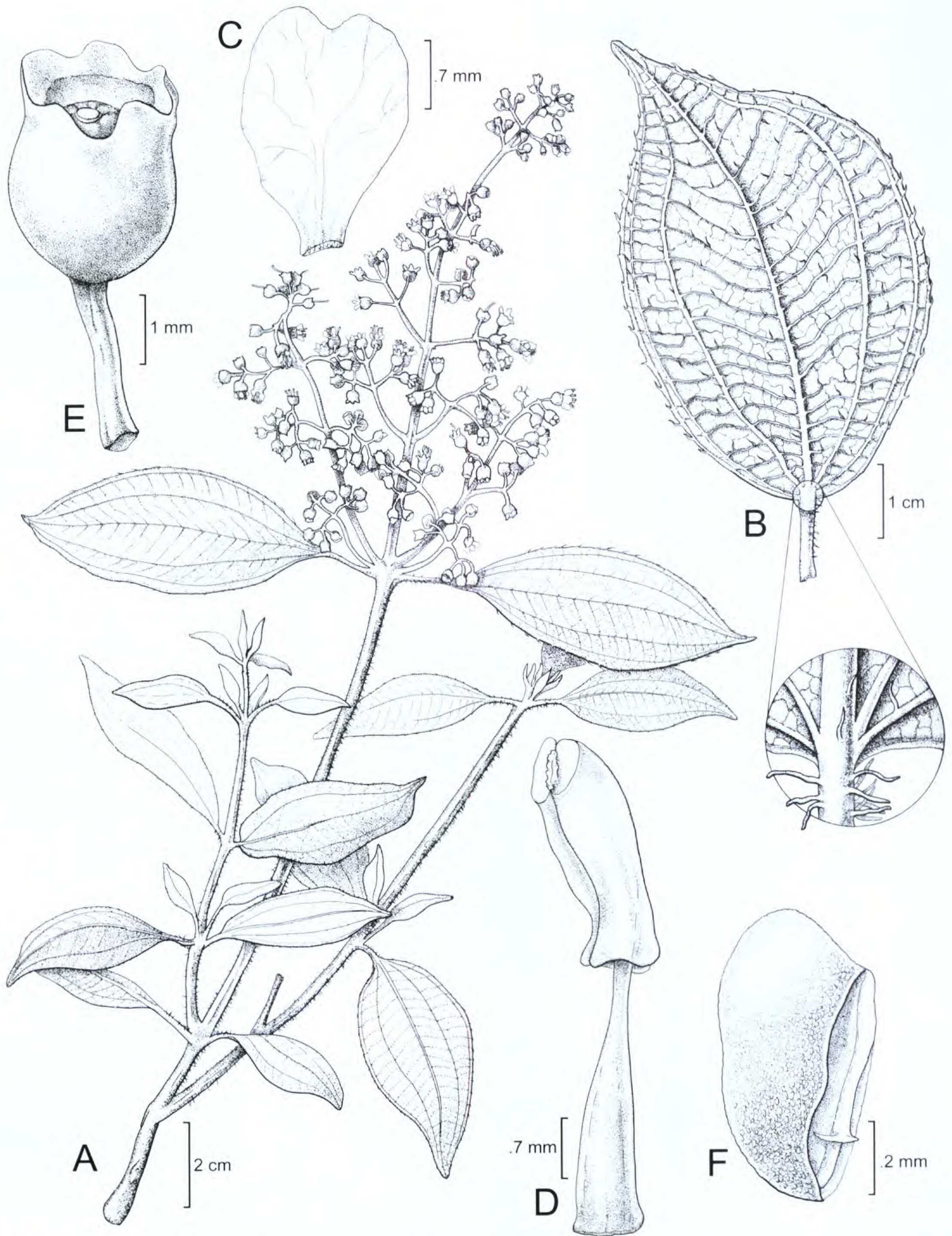


Figure 5. *Miconia tonduzii* Cogniaux var. *hirtella* Almeda. —A. Habit. —B. Representative leaf (abaxial surface). —C. Petal (adaxial surface). —D. Stamen ($\frac{3}{4}$ profile view). —E. Berry. —F. Seed. (A–E from the holotype Almeda & Nakai 4809; F from Almeda & Nakai 4799.)

cauline internodes and petioles. These spreading trichomes are also found on inflorescence branches of some specimens and the abaxial surfaces of some leaves. This is the only variety of *M. tonduzii* that is restricted to Costa Rica. Populations from Cerro Daser differ in having modally larger leaf blades (up to 13 cm long and 8 cm wide) that are \pm ovate. In all other features this foliar variant is identical to typical populations of this variety.

Etymology. The varietal epithet is derived from the Latin word *hirtus*, hairy or rough, in reference to the spreading hairs on distal internodes and petioles.

Paratypes. COSTA RICA. **Cartago:** Volcán Irazú in pasture along CR rte. #40 from Cartago to the crater, *Barringer et al.* 3239 (CAS, F); Villa Mills area near Cerro de la Muerte, *Huft et al.* 2155 (CAS, MO); vic. La Picada & Finca Retiro on E slope of Volcán Turrialba, *Wilbur* 24676 (CAS, DUKE). **Cartago/San José border:** 15 km SSE of El Empalme intersection on the Cordillera de Talamanca, *Almeda et al.* 3375 (CAS); Cordillera de Talamanca, vic. of Ojo de Agua, *Almeda & Nakai* 4799 (CAS). **Heredia:** Cantón de Barva, Parque Nac. Braulio Carrillo, Estación Barva, *Fernández* 1466 (CAS, INB, MO); Volcán Barva approaching La Laguna on Pacific side, *Lumer* 1177 (CAS, CR, NY). **San José:** Cerros de Escazú, Cerro Daser from ca. 200 m below the crest to the top, *Utley & Utley* 2285 (CAS, CR); ca. 5 km W-SW of Aserrí along upper slopes & summit of Cerro Daser, *Almeda & Nakai* 3663 (CAS).

M. tonduzii Cogniaux var. ***serrulata*** Cogniaux, in A. DC. & C. DC., *Monogr. Phan.* 7: 1191. 1891. TYPE: Costa Rica, secus Río Poás ad mont. Iscazu, alt. 2100 m, *H. F. Pittier* 2393 (holotype, BR; isotype, US).

Miconia tonduzii var. *parvifolia* Cogniaux, in A. DC. & C. DC., *Monogr. Phan.* 7: 1191. 1891. Syn. nov. TYPE: Costa Rica, in sylvis ad Rancho Flores, alt. 2043 m, *A. Tonduz* 2116 (holotype, BR).

Section *Cremanium*. Shrubs or small trees 2–5 (–9) m tall, juvenile leaves and vegetative buds sparsely and deciduously furfuraceous-puberulent to glabrate. Leaves of a pair equal to somewhat unequal in size; petioles 1–3 cm long; blades 6–12 \times 2–4 cm, 3-nerved or 3-plinerved, often with a depressed pair of intramarginal veins, elliptic, adaxially glabrous, abaxially sparsely and inconspicuously lepidote, apex gradually acuminate to caudate-acuminate, base acute, the margin conspicuously serrulate. Panicle 4–10 cm long; flowers 5(to 6)-merous on pedicels 0.25–0.5 mm long, the deciduous elliptic bracteoles 2–3.5 mm long. Hypanthia obscurely and deciduously punctulate-lepidote, but appearing glabrous; calyx tube 0.25 mm long, the oblong apically rounded lobes 0.5–

0.7(–1) mm long, the tuberculate teeth 0.5–0.7 mm long, appressed to and not exceeding the lobes; petals 1.5–2.5 \times 1.5–2 mm, obovate, glabrous; stamens isomorphic; anthers 1–1.5 mm long, 4-celled, cuneate, white, the broad pore ventrally inclined; connective thickened dorso-basally into a blunt lobe or spur, but ventro-basally adnate to the thecae to form a bilobulate appendage; style 5 mm long, glabrous; stigma capitate; ovary 3-locular, $\frac{1}{2}$ inferior, apex shallowly fluted and sparingly glandular-puberulent to glabrate. Berry 5–6 \times 5–6 mm, blue-gray or blue-violet at maturity; seeds 0.5 mm long, ovoid, obscurely rugulate or granulate.

Phenology. Flowering collections have been made from January through May and in September and October; fruiting material has been collected from February through May and in August and September.

Distribution. Locally common in elfin forests and cloud forests from Nicaragua at Montaña Cuspire (Depto. Jinotega) and Isla de Ometepe (Depto. Rivas) to Costa Rica's Cordillera de Tilarán, Cordillera Central, and Cerros de Escazú at 400–2200 m.

This variety is distinguished by its conspicuously serrulate leaf blades that are 3-nerved or 3-plinerved. Nicaraguan populations (*Pipoly* 5955 and 6042, both at CAS) from Cerro La Pimienta (Zelaya) and *Pipoly* 5164 (CAS) from Cerro El Hormiguero (Zelaya) superficially resemble this variety in having elliptic leaf blades that are sparsely lepidote abaxially, but the foliar margins are obscurely serrulate and the anthers on the meager material available for study appear to be 2-celled. Study of the few flowers on *Pipoly* 6042 are also suggestive of dioecism. If examination of better material confirms this observation, these puzzling collections should also be compared with *M. glaberrima* (Schlechtendal) Naudin of southern Mexico and northern Central America.

Representative specimens examined. NICARAGUA. **Jinotega:** Montaña Cuspire; *Moreno* 8028 (CAS). **Rivas:** ladera N del Volcán Concepción, Isla de Ometepe, *Martínez et al.* 1522 (CAS, MEXU); Isla de Ometepe, Lago de Nicaragua, N slope of Volcán Maderas, *Neill & Vincelli* 3304 (CAS). COSTA RICA. **Alajuela:** Palmira, *Smith* NY527 (CAS, NY); Monteverde, road from Cerro Plano to Cerro Amigos, *Penneys* 1490 (CAS, FLAS). **Heredia:** headwaters of Río Santo Domingo, ca. 3 km E of San Rafael de Vara Blanca, N slope of Volcán Barva, *Grayum et al.* 7150 (CAS, CR, MO); Reserva Cerro Chompipe, *Umaña & Chacón* 546 (CAS, CR); ca. 2 km SE of jet. CR 120 & CR 9 on CR 9, ca. 3 km south of Varablanca, *Utley & Utley* 4392 (CAS, DUKE). **Puntarenas:** Cordillera de Tilarán, Monteverde Cloud Forest Res., *Almeda & Daniel* 4864 (CAS, CR). **San José:** 6 km NE of Cascajal, *Almeda & Nakai* 4864 (CAS, CR); ca. 5 km WSW of Aserrí along

upper slopes and summit of Cerro Daser, *Almeda & Nakai* 3678 (CAS, CR).

Tibouchina tortuosa (Bonpland) Almeda, comb. nov. Basionym: *Rhexia tortuosa* Bonpland, Monogr. Melast. 2: 17, pl. 7. 1806–1808. *Ossbeckia tortuosa* (Bonpland) Sprengel, Syst. Veg. 2: 312. 1825. *Chaetogastra tortuosa* (Bonpland) DC., Prodr. 3: 132. 1828. *Oreocosmus tortuosus* (Bonpland) Naudin, Ann. Sci. Nat. Bot. 3, 13: 38. 1850. TYPE: Mexico. Guerrero: Taxco (as Tasco), A. Bonpland s.n. (holotype, P; isotype, P [2]).

Pleroma mexicanum DC., Prodr. 3: 152. 1828. TYPE: Mexico, without exact locality, M. Sessé & J. Mociño s.n. (holotype, OXF, photos, CAS, F, US).

Suffrutescent herb or slender shrub 0.5–1.5 m tall; distal branches quadrate, rounded with age, the internodes and petioles moderately covered with appressed simple trichomes 1–4 mm long. Leaves of a pair somewhat unequal in size, petioles 2–14 mm long; blades 2.9–9 × 1–3.4 cm, elliptic to elliptic-lanceolate, apex acuminate, base acute, margin inconspicuously ciliate-serrulate, 3- to 5-nerved, adaxially moderately strigose, abaxially moderately covered with appressed indument of smooth trichomes on and between the primary veins. Inflorescence a simple or once-compound cyme but commonly reduced to paired or solitary flowers on pedicels 2–4 mm long; bracteoles 3–6 (–10) × 0.5–3 mm, narrowly elliptic to oblong, sparingly strigose on both surfaces, entire, ciliate, and early deciduous. Calyx lobes 5–8 × 0.75–1 mm, ciliate, sparingly beset with a few simple trichomes on both surfaces; petals 10–15 × 8–11 mm, lavender, the margin ciliate, the cilia often gland-tipped; large stamens, with filaments 5.5–6 mm long, anthers 3.5–6 mm long, subulate, reddish-purple; connective prolonged 1.5–3.5 mm below anther sacs, expanded dorsally near filament insertion into a minute lobule and ventrally into a yellow bilobed appendage 0.5–1 mm long; small stamens, with filaments 5–7 mm long, anthers 2–5.5 mm long, linear-oblong, yellow, connective prolonged 0.25–0.5 mm below anther sacs, the yellow shallowly bilobed ventral appendage 0.25–0.5 mm long; style 8–9 mm long. Fruiting hypanthia 6–7 × 4–5 mm, subcylindric to suburceolate, moderately covered with appressed to antrorsely spreading smooth hairs 0.5–2 mm long; seeds 0.25–0.5 mm long, cochleate, the testa tuberculate.

Phenology. Flowering specimens have been collected from January through April and from July through December; fruiting collections have been

made from January through April, July, and from August through October.

Distribution. Locally common on slopes with mesophytic montane forests with *Fraxinus* L., *Pinus* L., and *Quercus* L. in southern Mexico from Michoacán, Querétaro, and Hidalgo disjunctly south to Chiapas at 950–1950 m.

The name *Tibouchina mexicana* Cogniaux has long been attributed to this species (Cogniaux, 1891; Standley, 1924). Because it is based on the same type as *T. tortuosa*, it is illegitimate and must be rejected since it was nomenclaturally superfluous when published. There has been no previous attempt to identify the earliest epithet for this species. Cogniaux did not give a date of publication for *Rhexia tortuosa* in his familial monograph and Standley erroneously lists the publication date as 1823, the same year that D. Don described this entity as *Melastoma mexicanum*, a later homonym that is also illegitimate. According to Stafleu and Cowan (1979: 369), *Rhexia tortuosa* was published sometime between 1806 and 1808, which gives it undisputed priority. I have examined the types of *R. tortuosa* at P and these together with the plate that accompanies the protologue leave no doubt that what have passed as *Pleroma mexicanum* and *Tibouchina mexicana* are clearly identical.

Tibouchina tortuosa and *T. rufipilis* (Schlechtendal) Cogniaux form a closely related species pair characterized by narrowly oblanceolate or linear-spatulate calyx lobes and dimorphic stamens. Typical *T. tortuosa* has a sparse covering of appressed trichomes on upper cauline internodes, whereas *T. rufipilis* usually has a denser cover of spreading internodal trichomes. Both species appear to be restricted to southern Mexico, but judging from available collections, the latter is less common and seems to have a range that is more eastern and centered in the states of Querétaro, Hidalgo, and Veracruz (Almeda, 1993). Posture and density of cauline pubescence is known to be an unreliable taxonomic character among species complexes elsewhere in the family. I have refrained from combining these two species, however, until the variation can be evaluated as part of a comprehensive revisionary study. If these two species prove to be conspecific, *T. tortuosa* is the epithet that has priority.

Representative specimens examined. MEXICO. **Chiapas:** mun. Tenejapa in the paraje Oshe Wits, *Breedlove* 7764A (DS, ENCB). **Hidalgo:** mun. Molango, 6 km SW of Molango, *Breedlove & Almeda* 59449 (CAS); along Hwy. 105 betw. Huejutla & Molango, 11.5 mi. N of Ajacaya S. Cristobal & 12.6 mi. N of jct. road to Otongo, *Daniel* 395 (CAS, MICH). **México:** mun. Tejupilco, 1 km al W de

Nanchititla, *Rzedowski 22104* (CAS, ENCB). **Michoacán:** entre Las Trincheras y El Puerto de Laureles, aprox. 21 km al SW de Zitácuaro, *Soto et al. 2658* (CAS, MEXU). **Morelos:** by streams near Cuernavaca, *Pringle 8021* (CAS, MEXU). **Puebla:** mun. Necaxa, along lake shore at Nuevo Necaxa, *Breedlove & Almeda 59593* (CAS). **Querétaro:** mun. Landa, 2 km al Noroeste de Neblinas, *Rubio 1175* (CAS, IEB); mun. Jalpan, 4–5 km al Poniente de La Parada, *Servín 324* (CAS, IEB).

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